

Executive Summary

Wisconsin Energy (WEC); Wisconsin Electric Power Company (WEPCO); and WE Power, LLC (WE Power), a non-utility affiliate are proposing to build approximately 1,830 MW of advanced technology coal-based generating capacity.

The applicants have applied to the Public Service Commission of Wisconsin (Commission or PSC) for a Certificate of Public Convenience and Necessity (CPCN) under Wis. Stat. § 196.491(3), and Wis. Admin. Code PSC ch. 1.11, and for any additional approvals required from the Commission to construct and operate a large electric power generating facility under Wisconsin's leased generation law, Wis. Stat. § 196.52(9).

The new facility, the Elm Road Generating Station (ERGS), would consist of two super-critical pulverized coal (SCPC) units and one integrated gasification combined-cycle (IGCC) unit, all constructed on or adjacent to a site containing WEPCO's existing Oak Creek Power Plant (OCPP). The proposed in-service dates for the two SCPC units are 2007 and 2009. The IGCC is proposed to begin commercial operation in 2011.

Bituminous coal from Pennsylvania would be the primary fuel for the SCPC and IGCC generating units. The assumed capacity factor for the SCPC facility is in the range of 85 to 90 percent and the assumed capacity factor for the IGCC facility would range from 75 to 80 percent. The applicants expect the plant to be operated, for the majority of the year, as a base-load facility over a life time of 40 to 45 years. The plants are expected to operate 24 hours per day. Each unit would be expected to operate about 10.5 to 11.0 months per year.

Under the leased generation approach, WEPCO would enter into a long-term facility lease with two wholly owned subsidiaries of its non-utility affiliate company known as WE Power. These subsidiaries of WE Power are ERGS Supercritical LLC and ERGS IGCC LLC. The WE Power subsidiaries would construct and have major ownership interest in the facilities, but lease the generating units to WEPCO at economic terms and conditions reviewed, regulated, and approved by the PSC. Other interest utilities might have ownership interests in the facilities as well, but WE Power companies would own no less than 83 percent of each of the new generating units. WEPCO would operate the coal facilities at the ERGS. Operation would include staffing, maintenance, and fuel procurement.

Proposed sites

The proposed sites for the ERGS are on a large parcel of land located along the shore of Lake Michigan near the existing Oak Creek Power Plant (OCPP). The entire parcel of land owned by WEPCO is approximately 1,000 acres in size. Much of the land currently functions as buffer area around the existing OCPP.

Three sites for the proposed ERGS were identified in the CPCN application. One of the proposed sites is in the city of Oak Creek in Milwaukee County at the east end of Elm Road, north of the existing OCPP. This site is referred to as the North Site throughout this EIS. A second site, the South Site, is located on a portion of the property that is south of the existing OCPP, along the lakeshore in Racine County. A variation of the South Site was proposed as the applicants' third site alternative. In this variation, the SCPC units would be

placed in the same location as for the South Site, but the IGCC facility would be built on land that is currently state and federally owned and used as a shooting range. For purposes of description and analysis in this document, this variation is referred to as the South Site-Exp option.

After the draft EIS was issued, WEPCO designed another site layout plan for use at the North Site. This site layout was negotiated as part of the Conditional Use Permit (CUP) process that the applicants agreed to follow in their agreement with the city of Oak Creek. The applicants have stated that they would be willing to build the ERGS facilities as proposed in their CPCN application (with some exceptions), but that they would like to have the new site layout considered by the Commission in its final decision on the project. In order to have this option, hereafter referred to as the CUP Option, available for consideration by the Commission, PSC and DNR staff have reviewed the new site layout for the CUP Option and assessed its environmental effects to the extent possible. In the CUP Option, the two SCPC units and the IGCC unit would be placed at approximately the same location as in the original North Site layout. The new option involves relocating the coal storage area, splitting and relocating the existing 138/345 kV substation, adding a new access road, and altering the location and configuration of soil deposition areas. A detailed description of the new layout and some of its potential environmental effects are described in Chapter 12 of this final EIS.

Cost of the ERGS project

The cost to construct two SCPC units and the IGCC plant would be approximately \$4.15 billion. Estimated costs for the ERGS project on a per unit basis are listed in Table ES-1.

Table ES-1 ERGS estimated construction costs on a per unit basis

Item	Unit 1 SCPC (2003)	Unit 2 SCPC (2003)	Unit 3 IGCC (2003)
Generating Unit (2003 \$)	922,140,000	623,470,000	843,394,000
Shared Facilities	335,750,000	28,220,000	59,171,000
Escalation	125,412,000	78,594,000	147,118,000
Carrying Cost	261,300,000	275,200,000	298,900,000
Retirement Cost	138,330,000	73,028,000	104,968,000
TOTAL	1,782,932,000	1,078,512,000	1,453,551,000
TOTAL, 3 UNITS	4,314,995,000		

* Each unit has \$13 million included for additional train costs.

** Escalation is for general inflation as measured by the GDP price deflator.

*** Carrying costs represent the interest on the capital invested in the project.

**** Retirement costs include amounts necessary to tear down the facility.

The costs provided to the PSC for the ERGS are not as certain as those provided for the Port Washington units.¹ The estimated costs for the ERGS are on a “cost-up to 10 percent cap” basis, rather than a “firm” basis like the Port Washington costs.² In May 2003 direct testimony filed by WEPCO, it indicates that

¹ Introduction and Application booklet, p. 12 of the CPCN application and Volume 1, Enclosure 8, page 1

² In the Port Washington CPCN, WE Power indicated that it would bear the risk of cost overruns unless the overruns were due to unpredictable occurrences beyond WE Power’s control or changes in the general inflation level. The Commission accepted and approved such a “hold-to” treatment for the Port Washington combined-cycle units. Examples of unpredictable occurrences beyond WE Power’s control included changes in laws or government regulations and Act-of God or similar events.

project costs would be capped at no more than 10 percent above the construction estimates in this proceeding.

In the present ERGS docket, WE Power has indicated that a strong “hold-to” cost treatment such as that for the Port Washington facilities is not possible, thus placing some of the risk of any cost overruns on ratepayers. However, in its direct testimony WEPCO now indicates that any cost overrun would be capped at 10 percent. The implication of the estimated project costs, including the cost uncertainties, on ratepayers is discussed below.

WEPCO has indicated that the construction cost of each SCPC unit would be \$1,400,000 per MW in 2003 dollars. The estimated construction costs and WEPCO’s portion of the coal plant’s output translate into a \$721,000,000 lease obligation in 2001 dollars for each of the SCPC units.³ Allowing for expected annual inflation of about 2.32 percent per year, turns that obligation into a \$808.6 million value, measured in 2008 dollars to reflect the year the first unit is expected to begin commercial operation.⁴ This \$808.6 million represents the principal amount on average per SCPC unit used in the facility lease. This value does not include retirement or management costs. It also excludes carrying costs incurred during construction. Using lease terms that were approved for the Port Washington Generating Station docket, which included a return on equity of 12.7 percent, a capital structure containing 53 percent common equity, a debt cost of 5.00 percent (based on long-term utility debt with an “A” credit rating) and a 30-year lease term, the annual lease payment from WEPCO to WE Power would be \$111.25 million on average for each SCPC unit.

In the affiliated interest portion of this proceeding, docket 05-AE-118, PSC staff has suggested that a return on equity of between 11.0 and 11.4 percent would be more appropriate for the proposed facility lease for the SCPC plants should the Commission decide to use that form of financing. Using the midpoint of this range, or a 11.2 percent return on equity, would reduce the estimated annual rent from \$111.25 million to \$101.28 million.

Together, the annual lease payments for the two SCPC units would equal about \$222.5 million. By 2010, the retail electric revenue requirement for WEPCO could be \$2.15 billion. This means that the additional lease payments for the first two SCPC plants at Elm Road would increase retail electric revenue requirement by about 10.3 percent by the end of 2010. For a residential customer paying about \$40 per month, this means that the average customer bill would increase about \$4.12 per month. This estimated effect covers the construction cost component only, and represents a proportionate increase across all customer classes, and does not include the IGCC unit.

One of the reasons a leasing approach for the coal plants was pursued, according to WEC, is that WEPCO would unlikely be allowed sufficient return on a traditional rate-base investment to compensate investors for the risks associated with the coal plants. Commission staff compared the cost of rate-based ERGS project to the proposed leased generation proposal and assumed all lease terms were the same as for the leasing method except for the return on equity and the project life.

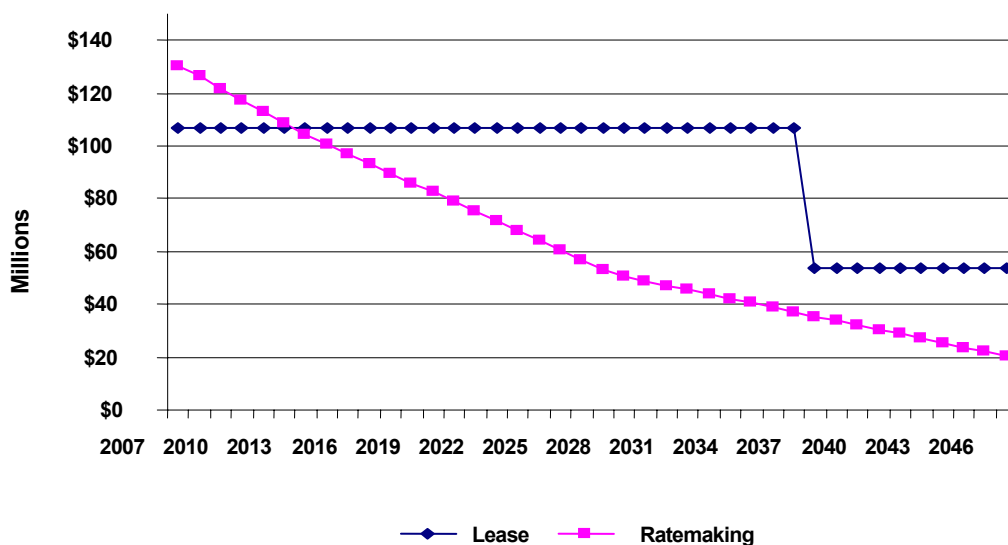
³ The calculation is $\$1,400,000/\text{MW} \times 515 \text{ MW} = \$721,000,000$.

⁴ Calculated as $\$650,445,000$ in 2001 dollars \times six years compounded 2.32 percent annual inflation or $\$650,445,000 \times [(1+.0232) ^ 6] = \$746,404,000$ in 2007 dollars.

Staff's analysis indicates that a traditional rate-making approach would cost ratepayers about 14 percent less on a present value basis than using the proposed lease financing mechanism. For example, for 40 years of operation, the present value of the lease approach for one SCPC unit is \$868 million in 2003 dollars as compared to \$753 million using traditional rate-making procedures. This difference would occur if the rate-based coal generation projects could be financed at a common equity rate of 13.7 percent assumed in the analysis.

While the rate-base calculation is less cost than the facility lease method on a present value basis, there are important intergeneration equity aspects that may favor the lease. Under the facility lease, the annual rent would be \$111.25 million on average per year per SCPC unit over the 30-year lease; whereas, under traditional rate making procedure the revenue requirement would start out much higher at \$137 million and then gradually decline to around \$22 million after 40 years. This means that under traditional rate-making, current customers would pay relatively more for the plant than future customers would. The following chart depicts the required revenue streams under the facility lease approach and traditional rate making:

Figure ES-1 Comparison of facility lease and ratemaking annual cost streams for a SCPC unit



On March 25, 2003, the city of Oak Creek and WEPCO entered into an agreement by which WEPCO agrees to annually pay the city of Oak Creek \$1.5 million at the start-up of ERGS unit 1, \$750,000 at the start-up of ERGS unit 2, and \$250,000 at the start-up of ERGS unit 3.⁵ Under this arrangement, the city of Oak Creek would drop its opposition to the ERGS project, and WEPCO would seek Commission approval for ratepayer recovery associated with the annual community impact payments. The first annual payment of \$1.5 million would increase the cost of the facility lease for the first SCPC unit by about 1.3 percent based on an annual estimated lease payment of nearly \$107 million. The effect of such payment would be less than \$0.54 per month for an average residential customer. The Commission approved such payments to the city

⁵ In addition to the annual payments, this agreement contains language about capping emissions. At this time, neither PSC nor DNR staff have been provided detailed information about these emission caps.

of Port Washington for the two recently approved 545 MW gas-fired combined-cycle generating plants to be constructed in that city. Whether these payments should be recovered and what is the appropriate level may be key issues at hearing in this case.

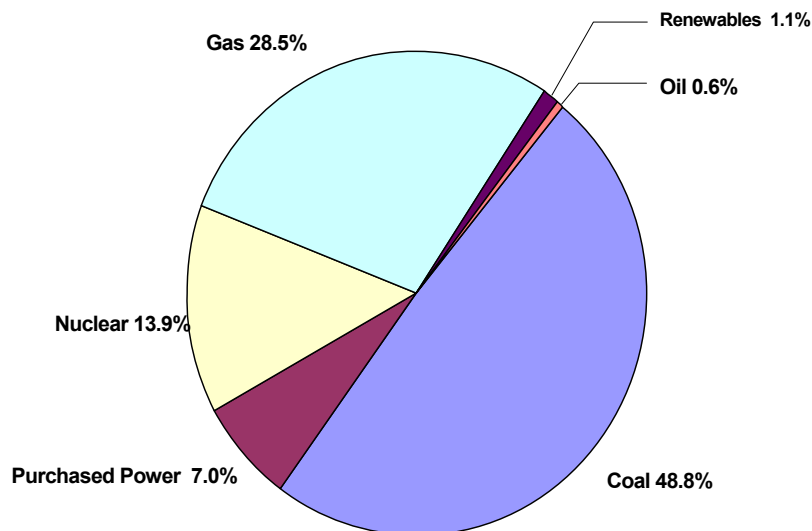
Need for the ERGS project

Planning at least five years into the future is required for large generating units because of the construction lead-time necessary. The need for one, two, or three units is examined.

WEPCO currently maintains sufficient peaking capacity and/or purchase power arrangements to cover unscheduled or planned outages from its generation supply during peak demand. WEPCO's peak load for 2002 was 5,479 MW⁶ with an estimated peak at 5,624 MW, as reported in its 2002 Wisconsin Strategic Energy Assessment (SEA) filing for 2003. Available WEPCO-owned capacity at peak, for 2003, is 5,053 MW. In addition, WEPCO has 948 MW contracted from merchant power plants and expects 411 MW of purchases without reserves. Adjusting for its Upper Michigan load of 98 MW, yields a total supply of 6,430 MW in 2003, as reported in the SEA. This results in a 20.56 percent reserve margin for WEPCO in 2003.

Although its reserve margin for 2003 is quite sufficient, WEPCO is becoming increasingly dependent on power purchases to meet its needs. Figure ES-2 indicates that seven percent of its capacity to meet the anticipated peak demand will be power purchases. This does not include merchant plants under contract to WEPCO which are included in the gas portion.

Figure ES-2 WEPCO's summer capacity available for 2003 peak demand



⁶ Peak load not weather normalized and for Wisconsin only load of WEPCO.

To obtain the required 18 percent planning reserve margin,⁷ WEPCO has increased its reliance on interruptible load, load control, and increased purchases with reserves to reduce its peak load. On the supply side, WEPCO has increased its reliance on merchant plant capacity purchases and purchases without reserves, some of which are located outside of Wisconsin.⁸

Figure ES-3 shows the increase in power purchases and merchant plant generating capacity. These purchases have, in turn, increased the strain on a transmission system that is already viewed as overloaded; it is unlikely that this trend can continue. This trend implies that there may be a need for more baseload capacity in Wisconsin and more transfer capability.

Figure ES-3 WEPCO's power purchases and merchant plant capacity

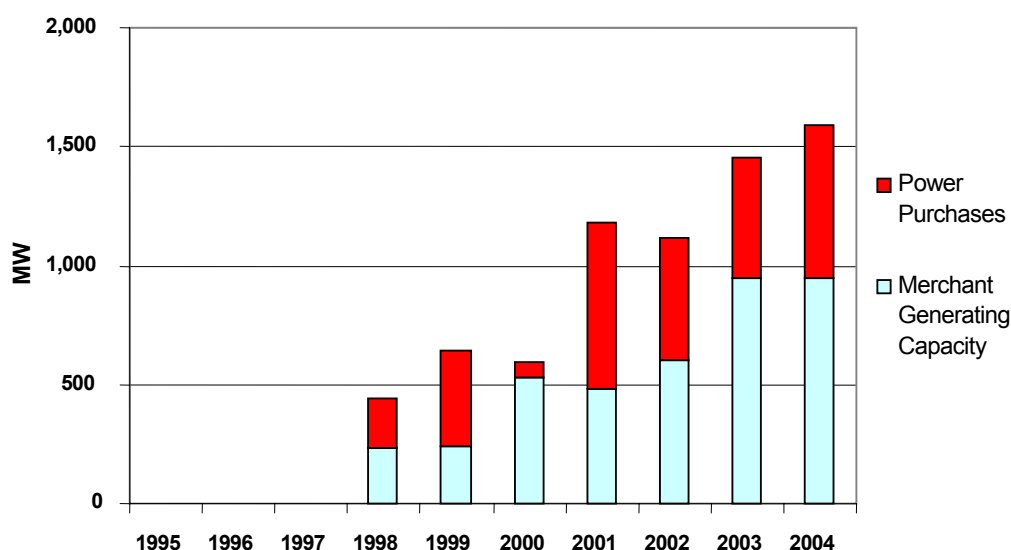


Table ES-2 shows WEPCO's forecast for growth in electric demand and energy use forecast through 2030 and the lower growth rates used by the Energy Information Administration (EIA) in its estimates of energy growth rates for the Mid-America Interconnected Network (MAIN) through 2020.

WEPCO's forecasted growth rates from 2002 through 2011, in this case, are very close to those it used for the Port Washington case. Commission staff completed a detailed analysis of WEPCO's forecast, analyzing the residential, commercial and industrial sectors. Staff's analysis indicates that WEPCO's electric demand and energy forecast is reasonable although it may have a slight upward bias.

As in the Port Washington case, Commission staff applied the forecasted growth rates estimated by the EIA for the MAIN region for 2002 to 2020. Commission staff used also the EIA MAIN forecasted increase for

⁷ The North American Electric Reliability Council (NERC) recommends a 15 percent reserve margin, but the Commission has added an additional 3 percent in order to allow for transmission constraints and other reliability issues in Wisconsin and the Upper Midwest.

⁸ The distinction between purchases with reserves and purchases without reserves pertains to the power seller's responsibility for planning reserves. A purchase with reserves means the seller is required to have sufficient capacity to back up the sale as if the seller were delivering the power for use by its own native load customers.

2019 to 2020 for the period 2020 through 2030. The EIA forecast is for energy use only. Commission staff assumed that the growth rate in peak demand would be the same as the growth rate in energy during this period. The difference between the two forecasts is an increase in peak demand of 500 MW in the WEPCO forecast by the year 2015. Under the EIA MAIN forecast, WEPCO would not need the capacity represented by the third coal plant until much later.

Table ES-2 Summary of peak and energy forecasts: WEPCO and MAIN Region

Year	Peak Demand (MW)			Energy Use (GWh)	
	WEPCO	MAIN		WEPCO	MAIN
2002	5,778	5,778		30,877	30,877
2005	6,276	6,223		33,379	33,254
2010	7,258	6,971		37,920	37,250
2015	8,166	7,665		42,024	40,958
2020	9,175	8,321		46,345	44,464
2025	10,295	8,925		48,974	47,689
2030	11,280	9,515		52,735	50,845
Growth Per Year					
2002-2005	2.8%	2.5%		2.6%	2.5%
2005-2010	3.0%	2.3%		2.6%	2.3%
2010-2015	2.4%	1.9%		2.1%	1.9%
2015-2020	2.4%	1.7%		2.0%	1.7%
2020-2025	2.3%	1.4%		1.1%	1.4%
2025-2030	1.8%	1.3%		1.5%	1.3%

Figure ES-4 displays the WEPCO peak load demand forecast compared to the electric supply resources available to the utility if there is no expansion in existing generating capacity, if the 1,090 MW of Port Washington capacity is added to WEPCO's existing system, and if both the Port Washington and 1,800 MW of ERGS capacity is added to the existing system using the implementation schedule set forth by the utility. Figure ES-4 demonstrates that without some type of significant capacity addition after 2007, WEPCO would not be able to meet its expected peak load obligation. Data in Figure ES-4 assume that WEPCO continues to purchase as part of its existing capacity about 1,200 MWs from merchant power plants and other suppliers during the 2005 to 2015 time frame.

Currently, coal-fired generation accounts for the majority of WEPCO's energy produced, as shown in Figure ES-5. The question of what technology should be used to supply needed baseload generation is a major issue of interest in this case. Natural gas use carries the potential for high-priced fuel and increased price volatility, but it has a lower emission profile, less intensive resource use related to land and water, and a significantly lower, more consistent capital cost than coal-based generation.

Figure ES-4 WEPCO peak load compared to generation supply with and without the Port Washington and ERGS units

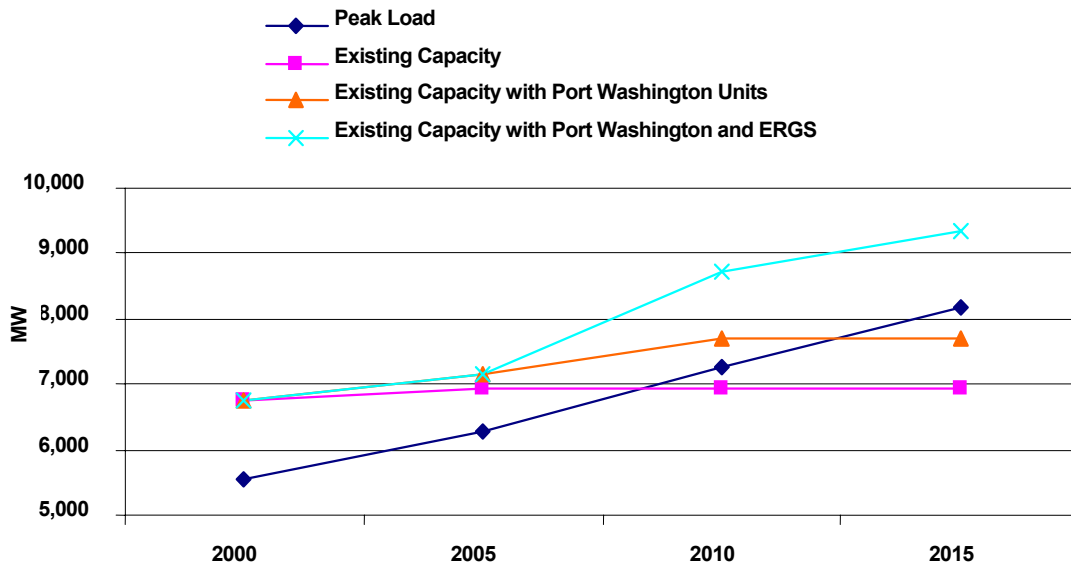
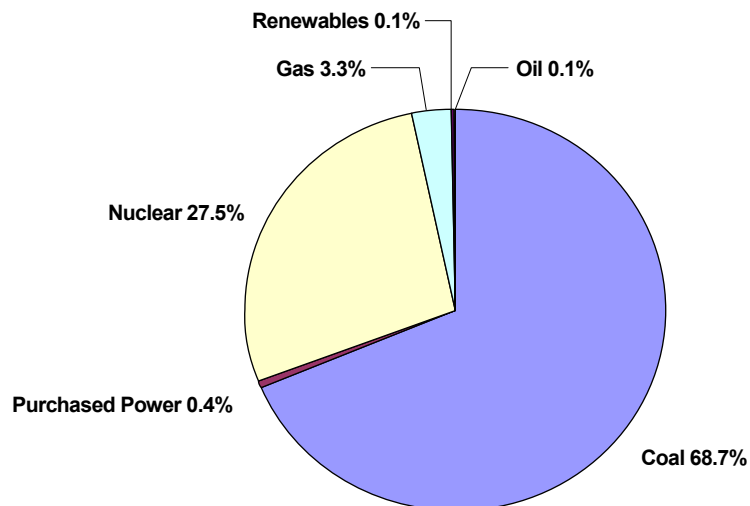


Figure ES-5 WEPCO's energy production by fuel for 2001 in MWh



Alternatives to the ERGS project

A range of alternatives, which includes taking no action, reducing energy load and peak demand, considering other energy supply sources, and approving all or part of the proposed project were analyzed with respect to cost, technical feasibility and environmental soundness.

Commission staff used EGEAS (Electric Generation Expansion Analysis System) to determine the alternative generation expansion plans, the cost of the plans and the projected timeframe that various units of capacity would be needed. Commission staff addressed the following scenarios when performing its EGEAS analyses: 1) Base Case; 2) DSM-EIA Load Growth; 3) High Gas Prices; 4) Low Gas Prices; 5) High Coal Prices; 6) Low Coal Prices; 7) Coal Capital Costs plus 10 percent (this scenario addresses the potential for capital cost overruns); 8) CO₂ Monetization; 9) Monetization of NO_x, Hg, and SO₂ Emissions; 10) Capacity of the SCPC at 615 MW; and 11) Retirement of All Coal at 60 Years. For each of these scenarios, Commission staff performed an EGEAS run assuming three different outcomes:

- Optimal operation (EGEAS picks the best combination of generating options)
- Optimal operation with a Calpine 523 MW combined-cycle unit by 2007. Calpine, LLC filed a proposal in early 2003 to have the Commission consider its Calpine Fond du Lac Energy Center, currently under review at the PSC, as a substitute for all or a portion of the proposed ERGS.
- Two SCPC units (2008 and 2009); no IGCC unit. This is the ERGS project without the IGCC.

Commission staff's EGEAS analysis resulted in several quantitative conclusions:

1. The IGCC unit, which is the third unit in the ERGS proposal, is not cost-effective.
2. The proposed timing of the SCPC units in 2007 and 2009, as WEPCO has proposed, is not least cost. This scenario is generally more than \$100 million more expensive on a present value basis. Timing appears to be about two to three years premature.
3. The Calpine 523 MW CC proposal in Fond du Lac using natural gas is lower cost than the ERGS - w/o IGCC proposal. However, the Calpine proposal would not need to be put in-service until 2007. Selecting the Calpine proposal does not mean that coal plants would not be needed. Several scenarios suggest that a coal plant would not be needed until 2011, if not later, if the Calpine proposal is selected.
4. CO₂ monetization, as well as other emissions monetization scenarios, favors picking the Calpine proposal versus ERGS w/o IGCC.
5. If the coal plants were to have cost overruns of 10 percent, then the Optimal expansion plan does not select a coal plant until 2011.
6. Should lower demand and energy growth occur due to increased energy efficiency efforts and lower overall use of electricity than depicted by WEPCO in its base demand and energy forecast, then the earliest a new coal facility would be needed is 2012.
7. ERGS w/o IGCC could be made competitive with the Calpine Fond du Lac proposal by the Commission choosing an overall financing plan that would cost ratepayers between \$50 million and \$100 million less on a present value basis.
8. Substantial Lake Michigan wind development exceeding 2,500 MW by 2014 and 11,000 MW by 2023 would be effective in meeting demand and energy growth for WEPCO, but it would require a substantial federal transfer via a permanent wind tax credit of \$18 MWh. If the federal government were to not renew the wind tax credit presently set to expire in 2004, then no new wind would be selected by EGEAS until 2017.
9. An expansion plan over the next 30 years relying exclusively on natural gas would cost ratepayers \$1.9 billion more than a balanced plan using optimally timed gas- and coal-fired electric generation, as well as some wind generation development.

These results are based on a materiality threshold of \$10 million. Using a \$50 million materiality threshold still results in selecting the Calpine project over the ERGS without the IGCC proposal.

These results focus on quantitative effects. The Commission will need to consider impacts of qualitative factors as well, including both environmental and economic risks associated with the use of different fuels.

Environmental Effects of the ERGS project

Soil excavation and stockpiling

The proposed design would place the ERGS facilities below the existing grade level, so that once-through cooling technology could be used to operate the plants. This design would have major implications for altering the present OCPP property owned by WEPCO, both in terms of changing the topography along the lakefront, stockpiling the excavated soil at various locations on the property, and changing existing drainage patterns.

If only the two SCPC units are constructed, the amount of soil excavated would range from 5.8 to 7.3 million cubic yards, with the greater amount required for use of the North Site. If all three units are approved and built, between 7.3 and 10.0 million cubic yards of soil might be excavated and removed to make room for the facilities. Use of either the North Site (original site layout) or the South Site-Exp would require a greater amount of soil removal. Use of the Cup Option would require slightly less. In addition, the closed North Oak Creek Power Plant buildings would be demolished to make room for the plant if the facilities are built on the North Site.

The applicants preliminary designs included in the CPCN application identified several permanent soil stockpile locations where berms would be created to help in screening the plant from view and attenuating noise from plant operation. A number of vehicles and types of machinery would be needed to excavate and haul the soil to the deposition areas. The amount of diesel fuel needed and the size and location of diesel storage facilities required to operate the machinery on a nearly continuous basis for a period of about one year have not been determined at this time. Because of this, the potential for noise, fugitive dust and diesel fumes related to the soil excavation and hauling activities cannot be accurately assessed at this time.

The primary soil stockpile locations described in the application include:

- an area east of STH 32 south of the existing transmission line corridor;
- an area north of Elm Road across the railroad tracks from the Barton Oaks subdivision that is currently old field, wetlands, and the North Ash Landfill;
- a large area immediately south of Haas Park that currently supports the Oak Creek South Ash Landfill;
- an area that is currently farmed which is located north of Seven Mile Road and east of STH 32; and
- an area west of the proposed switchyard expansion and east of the railroad tracks.

The CUP Option entails some different locations and configurations for soil deposition sites. The berms north of Elm Road would be lengthened in a north-south direction and extend across the closed section of Elm Road east of the Union Pacific railroad tracks. The berms east of Haas Park would be pushed slightly

more to the east. Berms in both of these areas would have a wavy edge effect, steeper slopes, and would be slightly higher than in the original plans. In addition, use of the CUP Option would require relocating the shooting range further to the south adjacent to Seven Mile Road and Lake Michigan. Large berms would be constructed around the perimeter of the new shooting range.

Proposed changes to the Lake Michigan shoreline and harbor

A new water intake system would be constructed regardless of the site selection or the number of generating units approved and built. The system would consist of a tunneled conduit or trenched-in pipes that would transport lake water that had been drawn in through velocity caps or an intake crib located approximately 3,500 to 9,000 feet off-shore.

Regardless of the final design selected, the construction of the new water intake system would involve dredging, with much more extensive dredging required for a trenched-in pipeline. Potential short-term impacts include localized increases in water turbidity, planktonic growth and nutrient levels, habitat disruption, and reductions in dissolved oxygen concentrations. Long-term effects could include modifications to the existing bathymetry, fish populations, and habitat quality. The final design of the water intake system must minimize impingement and entrainment of fish and other aquatic organisms in order to comply with new proposed rules for section 316(b) of the Clean Water Act under authority of the U.S. Environmental Protection Agency.

A new cooling water discharge structure, involving a seal well with concrete retaining walls and a rock-lined dredged channel, would also be constructed. Approximately 10 to 15 thousand cubic yards of material would be dredged from the Lake Michigan bed to create the channel. This material would also have to be stockpiled or hauled off-site. For use of the North Site, the structure would be located north of the existing coal dock along an area that currently supports a wide sand beach that provides good aquatic habitat for shore species. If the ERGS facilities are built on the South Site, the discharge structure would be located south of the coal dock in the vicinity of the existing discharge structure. Operation of the cooling water discharge structure would result in discharge of heated water causing a thermal plume that would extend into Lake Michigan waters. Based on modeling of the expected thermal plume, it appears that compliance with the acute and chronic criteria of the proposed Wisconsin thermal standards may be easily met.

To accommodate ship delivery of coal and limestone, the applicants have also proposed several major modifications to the existing harbor, including extension of the existing coal dock, construction of a new breakwater that would extend up to 1,900 feet into the lake, and dredging of a navigational channel. These harbor construction activities could result in extensive long-term impacts on the existing lakebed, creating dramatic changes in gradient between the coal dock, breakwater and channel. The diverse benthic habitat within the area would be reduced from a diverse mixture of micro-habitats to a uniform zone of sand and silt or large rock riprap.

At the present time, the applicants have stated that it is unlikely that they would construct facilities for delivering coal by both ship and rail, since the improvements needed for each option are very expensive and some railroad modifications would likely be necessary regardless of the coal transport method chosen. Because of these reasons, they have expressed a preference for coal delivery by rail, diminishing the possibility of constructing the new harbor facilities described above. (The water intake system and discharge structures would be needed regardless of the coal delivery option selected.)

Solid waste

WEPCO's two SCPC units would burn washed bituminous coal and the primary coal combustion by-products materials generated would include fly ash, bottom ash, and synthetic gypsum. Limestone used in the SCPC units to control and reduce SO₂ emissions would result in the gypsum by-product.

A total of 206,300 tons per year of fly ash and 51,600 tons of bottom ash would be produced each year by the two SCPC units. The respective volumes of the fly ash and bottom ash would be calculated at 171,900 cubic yards and 43,000 cubic yards. The total volume of fly ash and bottom ash together would be 214,900 cubic yards per year. Some of this volume will become part of the WEC's beneficial ash re-use plan and some of this waste is expected to be hauled to one of three area landfills: the Caledonia Landfill located about one mile west of the existing OCPP plant; the STH 32 Ash Landfill located in the town of Grafton about four miles southwest of the WEPCO Port Washington Power Plant; and the Pleasant Prairie Ash Landfill located in Kenosha County.

The primary by-products of the IGCC system would be slag produced by the coal gasification process and elemental sulfur or sulfuric acid, which results from the capture of sulfur containing gases during the IGCC process. Based on the proposed fuel, the sulfur content of the coal would yield about 33,200 tons/year of elemental sulfur. The quantity of sulfuric acid produced would amount to approximately 109,200 tons/year, or 50,700 gallons per day. This material may be considered hazardous waste. On-site liquid sulfuric acid storage would require a bulk liquid storage of 200,000 gallons.

WEPCO anticipates few changes in the hauling methods or routes for solid waste from the new facilities if the ERGS is built as proposed in its CPCN application; mostly existing OCPP roads would be used. Use of the CUP Option would require construction of new ash haul roads on-site. There would be an increase in truck traffic for transportation of ash and other by-products from the ERGS to other WEPCO-owned landfills. WEPCO is required to submit plan modifications to the DNR for any of the landfills they plan to use for disposal of newly generated by-products. WEPCO would also be required to update the design of these landfills to provide better protection for the groundwater.

The ERGS project includes the construction of access roads and temporary parking facilities over the majority of the footprint of the Oak Creek North Landfill. In addition, a significant amount of fill generated by the excavation for the construction of the two SCPC units would occur in this area.

The proposed modifications to the Oak Creek South Landfill involve compaction and grading of the newly deposited soil (from the site excavation) for a construction laydown area. Construction of access roads and development of short- and long-term stormwater management facilities would also occur in this area.

WEPCO has a beneficial ash re-use program in place. WEPCO is proposing, based on past experience and recent contacts with by-product marketers, to increase utilization of the ERGS by-products from zero percent to full utilization within 10 years on a straight line basis from the start of commercial operation of these new generating units.

Air quality impacts

Although the best available emissions reduction technologies would be installed on all emission-producing equipment at the ERGS, local air quality would be expected to decrease as a result of constructing and

operating the facility. Results of WEPCO's air modeling analyses indicate that the resultant concentration of total suspended particulates (TSP 24-hr) would be nearly 100 percent of the Wisconsin secondary (welfare-based) air quality standard. Concentrations of PM₁₀ including the regional background, are expected to be about 80 percent of the health-based National Ambient Air Quality Standard (NAAQS).

WEPCO's air modeling analyses (presented in this EIS) for construction on the South Site options are incomplete due to redesign of the project and late submittals of air permitting information. The Department of Natural Resources (DNR) will be conducting its own air modeling analysis as soon as the air permit applications are complete.

Noise

A noise survey was conducted according to the PSC's Noise Assessment Measurement Protocol to determine the projected impact of the ERGS facilities on the existing noise levels in and around the OCPP property. Assessments were completed for both the North and South Sites. Results indicate that the sound profiles for the two sites would be very similar. However, the North Site would potentially have a greater noise impact on the Barton Oaks Subdivision, whereas, use of the South Site would shift some of the impact south to affect residences along STH 32 near Botting Road. Noise levels related to the CUP Option may be lower due to relocation of the coal storage areas and some coal handling equipment. However, the CUP Option and the South Site-Exp option would require relocating the shooting range, thereby increasing noise levels for residents near Seven Mile Road. The plant design which would require excavation for the generating units and create an embankment to the west and north of either site would tend to attenuate sound emissions from the SCPC units.

Other temporary noise sources are likely to be somewhat louder and more noticeable to nearby residences. Noise from the coal handling facilities and the coal trains entering and exiting the site and unloading coal would be transient and inconsistent, making them more noticeable. The most significant noise source is likely to be the earth-moving and plant construction activities which could last over a period of five to six years if the SCPCs only are built and up to eight years if the IGCC is also built. Between 6 and 10 million cubic yards of soil would need to be excavated and moved. Noise levels associated with large construction equipment and heavily-loaded dump trucks can be fairly intense with a low frequency component.

Recreation

The local public has expressed a great deal of interest in establishing public access to accommodate shoreline fishing on the site adjacent to the proposed water discharge structure near the North Site. To date, no discussion has been held regarding access for fishing further south along the shoreline near the location of a discharge structure built to accommodate use of the South Site or the South Site-Exp option. Several local meetings have been held by the applicants to get input from local fishing clubs and the DNR. Concerns about plant security and public safety are the primary disadvantages of allowing fishing access and would have to be addressed before a final decision is made.

In addition, there is a north/south bike trail that passes through Racine County and currently ends at Seven Mile Road. There is a similar trail that begins near the boat launching facilities in Bender Park north of WEPCO's property. The public has expressed interest in the potential for connecting these two trails via an asphalt path that would pass through the OCPP property near the western boundary of the site. Again, the applicants have held several meetings to receive input and ideas and are considering the possibility of

combining such a trail with a Visitor's Center on the property. No final routes or facility designs have been chosen.

Local concerns have been expressed about views of the plant from some of the nearby parks, such as Cliffside Park in Racine County, Haas Park adjacent to the proposed project, and Bender Park located along the lake, north of WEPCO's property. The city of Oak Creek is encouraging development of a championship golf course on the northern portion of Bender Park and thinks that the aesthetics of the course could be diminished by the proposed additional generating units at the OCPP site.

Vehicle traffic

Regional and local traffic would be expected to increase as a result of the construction and operation of the proposed ERGS facilities. During the construction phase (for two or three units) up to 4,180 vehicle trips per day (this includes vehicles entering and exiting the plant) could be expected during peak activities. This would be reduced to about 1,000 to 1,500 trips per day during plant operation. Employees, about 400 in number taking into account existing OCPP employees would enter the site via a new access road leading into the plant facilities from Oakwood Road. Trucks and vehicles traveling to the site for deliveries or equipment maintenance would access the plants off of STH 32.

Traffic is also likely to increase on nearby arterial roads such as Ryan Road, STH 32 and Seven Mile Road west of the plant site. County plans to widen STH 32 in the future would help to accommodate this increase in traffic.

Elm Road, which currently supports a large amount of traffic due to the location of the main plant entrance just east of Haas Park, is proposed to be permanently closed east of the Union Pacific (UP) rail corridor in order to accommodate construction activities, laydown areas, and haul roads.

Proposed railroad modifications

Rail delivery of coal for the new SCPC units and the IGCC plant would require increasing the number of cars per train or increasing the capacity of the coal cars. The applicants have assumed that train lengths would likely be increased from the current 125 cars per train to 135 cars per train and that the number of trains per week would increase from five (currently) to nine for two SCPC units and eleven for the entire ERGS project. Without substantial rail improvements, several local roads could be blocked for a substantial amount of time each day.

This road blockage would be unacceptable to residents and emergency services that would need to access areas east of the Union Pacific Railroad tracks.

The primary rail improvement proposed is construction of an underpass beneath the tracks at Six Mile Road. This proposal would include construction of a bike/pedestrian bridge parallel to the tracks over the roadway to accommodate the Racine County Recreational Trail described earlier. At the present time, a new alignment located slightly north of the exiting roadway is being considered for this short section of Six Mile Road. At Seven Mile Road, the applicants have proposed to close the road and provide a cul-de-sac just west of the UP railroad tracks. This would result in the loss of convenient access to their homes for several residents who live just west of the tracks on Seven Mile Road and a potentially longer emergency response time for those residents if emergency services are needed. However, this inconvenience must be weighed

against the potential for a frequent and longer duration road blockages of Seven Mile Road if no changes to the road are made and the ERGS facilities are approved and built.

The applicants are also planning to install a new rail sidings on WEPCO's property and further to the south to service rail cars needing maintenance and a new indexer system that would automatically line up coal cars for unloading, rather than manually starting and stopping the train numerous times during coal unloading. This equipment and the new sections of track could substantially reduce the existing noise and emission of diesel fumes caused by the trains starting and stopping on-site and adjacent to the site.

Vegetation

Although portions of the OCPP property are highly disturbed, the site contains several areas of exceptional resource quality. The Southeast Wisconsin Regional Planning Commission (SEWRPC) has designated some of the areas as "primary environmental corridors" (PECs) and "isolated natural resource areas" (INRAs). In addition, a mature beech/basswood woodland has been designated as "critical species habitat" (CSH) because it supports over 90 plant species, including the state-endangered blue-stemmed goldenrod. Old field, wet meadow, other woodlands, grasslands, farmed cropland and marsh and pond habitat comprise some of the other vegetative cover on the site. Many acres of this upland and wetland habitat would be temporarily or permanently destroyed due to plant construction and stockpiling and berm construction using the materials excavated from the bluffs. Approximately 100 acres of these special resource areas would be destroyed by construction of the ERGS facilities regardless of the site or layout design used.

Use of the North Site (original layout of the CUP Option) would also remove several old fields and about 700 feet of bluff and beach habitat, part of which is designated PEC. Use of either of the South Site options would result in the loss of little or no high quality old field or beach and bluff habitat.

Several of the existing large blocks of habitat present on the OCPP site function as bird migration stopover sites for over 300 species of birds that travel thousands of miles, using the Lake Michigan shoreline to guide their flight through this region. Long-term major construction activities along shoreline and destruction of the bluff and beach habitat, as well as areas of grasslands and woods would diminish the attractiveness of this area as a stopover site for migrants.

Based on surveys conducted in spring of 2002 and 2003, and observations in recent years, grasslands present on the area proposed for the North Site, harbor five of the state's seventeen grassland birds that depend on grasslands for most or all of their breeding cycles. These include the bobolink, dickcissel, eastern meadowlark, and savannah sparrow and Henslow's sparrow, a state-threatened species. These grasslands would be destroyed if the facilities were built on this site.